CDS News

CDS CERAMICS

February 2009

Save up to 50% of drying energy cost

Reduced Oxygen (R-02™) Drying for Advanced & Technical Ceramics

Since 1996, the CDS R-O2 drying technology has been adopted by approaching 100 customers world wide in a variety of industries, including applications in refractories, whiteware ceramics, advanced and technical ceramics, fibre based shapes and various organic and inorganic materials that can tolerate a drying medium in excess of 100°C.

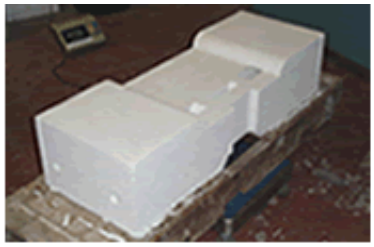
A CDS R-O2 Dryer for Crucibles

Fused Silica Crucibles

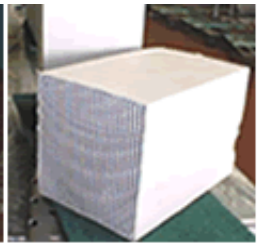
Crucibles

Unlike 'conventional' dryers that use heated air as the drying medium, the R-O2 drying process developed by CDS, uses dry superheated steam at atmospheric pressure.

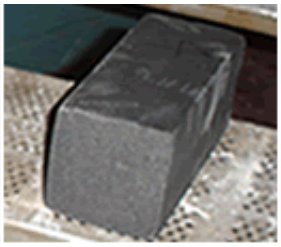
The process can be adapted for all production rates, with large scale plant capacities being possible as no maximum 'scale up' barriers have been identified.



Refractory Blocks



Extruded Catalytic Honeycomb



Honeycomb Catalytic Converter

Fibre Shapes

Advantages

The UK Department of Environment's Energy Efficiency Best Practice Programme sponsored

Advantages

The UK Department of Environment's Energy Efficiency Best Practice Programme sponsored industrial trials to compare the R-O2 process and conventional hot air drying of various products. R-O2 drying gave the following benefits over hot air drying:

- ✓ Reduced drying times in all cases of up to 50%. The higher heat capacity of dry steam, as compared to air, reduces the mass flow rate of dry steam required to dry the product and that is higher heat transfer coefficient, compared to air, means faster during times.
- ✓ Higher throughput, smaller plant, significant capital and operating cost savings.
- ✓ Improved product quality including sterilisation, conditioning, oxidation prevention.
- ✓ Energy consumption up to 50% lower.
- ✓ Demineralised water, virtual elimination of noxious emissions, reduced anti-pollution costs.
- ✓ Not needing a large hot air exhaust stack is another significant positive for some clients.

Lightweight Refractory Shapes

Castable Refractory Blocks

Other benefits the R-O2 drying technology offers over other drying technologies:

- ✓ The system operates in an essentially air free environment. The near absence of oxygen will help mitigate the risk of fire and explosion hazards.
- ✓ The absence of oxygen allows for a higher temperature to be used without concerns for product damage through overheating.
- ✓ The technology uses significantly less energy than conventional indirect drying due to the fact that nil fresh air and exhaust flow-through is required, which wastes a lot of heat energy.
- ✓ Options are available for cost-effective reuse of the energy in the steam vented from the dryer.

CDS R-O2 Dryers for De-Nox Catalytic Converters and Ceramic Fibres

Fibreboard

Refractory Bricks

Firebacks

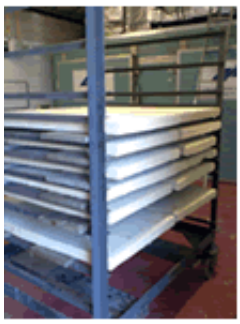
Dense Castable Refractory Blocks

Fibre Pressed Shapes

Therefore, the basic business case is:

- higher IRR (payback of investment) than conventional hot air drying, and
- Significantly reduced pollution than conventional drying.

In summary, compared to conventional hot air drying, R-O2 drying has demonstrated significant cost and environmental benefits in multiple commercial applications. R-O2 drying's much lower energy consumption offers faster payback of the capital invested.



Fibreboard

Refractory Bricks

Refractory Dart Heads

A CDS R-O2 Dryer in the pre-build stage

Product Trials and R&D Facilities

After more than 25 years of service to the industry, CDS have an extensive data base of the drying characteristics of most ceramic products.

However, our test facilities are available for companies wishing to take advantage of these facilities to determine precise drying rates for their own particular product range.

One of CDS's trial dryers

For further information, please visit our website at www.cds-group.co.uk or contact Steve Birch on **01782 336666**.

www.**cds-group**.co.uk

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